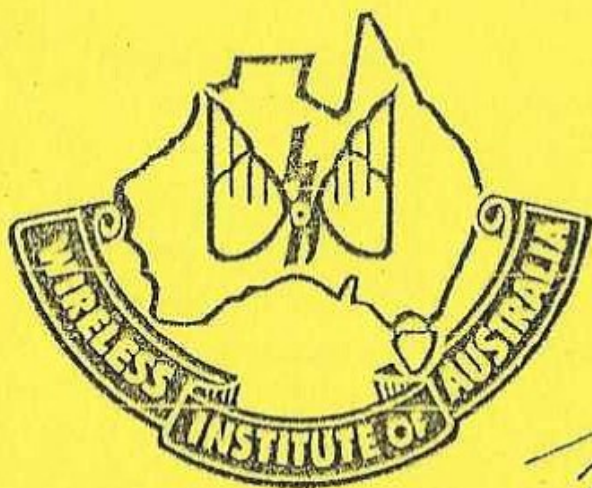


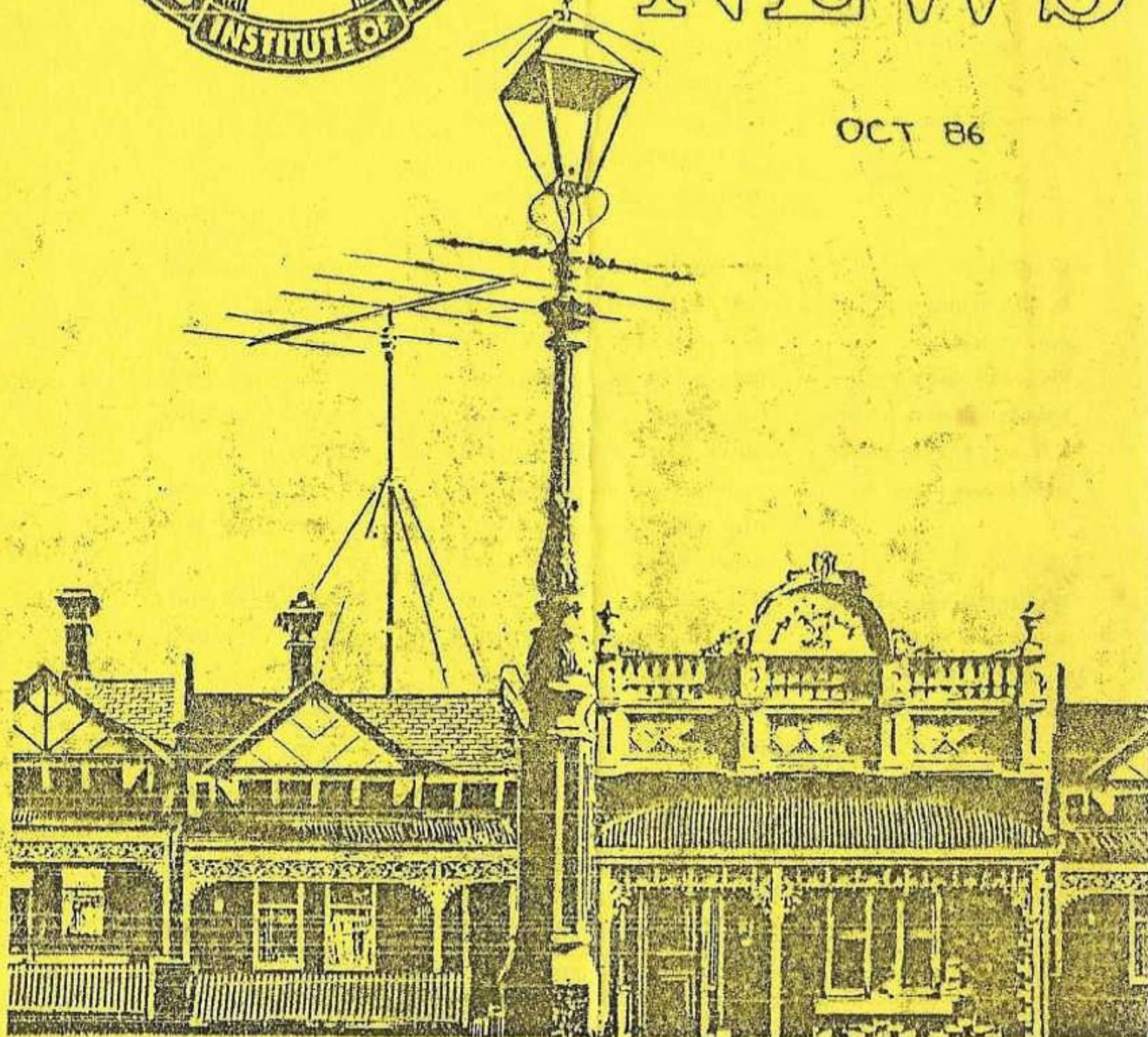
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01



B·A·R·G NEWS

OCT 86



© Monthly Newsletter of the
Ballarat Amateur Radio Group

Executive Committee

			<u>Home</u>	<u>Business</u>
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Assistant Secretary	Dick Forrester	VK3 VU	35 7663	39 1001
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Technical Officer	Ian Robinson	VK3 BTX	32 4139	
Member's Representative	Neil Davidson	VK3 KOQ	35 9612	

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Awards Manager	Maurie Batt	VK3 XEX	42 2245	
Property Officer	Dick Antoziewicz	VK3 AEX	32 3273	31 1818
Hamfest Convenor 1986	Murray Felstead	VK3 AAI	42 0447	31 5000
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	Dick Forrester	VK3 VU	35 7663	39 1001
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	Phil Seddon	VK3 AGM	431 5220	31 3166
	Maurie Batt	VK3 XEX	42 2245	
	Dick Antoziewicz	VK3 AEX	32 3273	31 1818

B.A.R.G. meets on the LAST FRIDAY of every month at the Ballarat Education Centre, Hopetoun Street, Ballarat at 7.30 pm.

Committee meetings are held at the Education Centre on the Wednesday two weeks prior to the Club meeting at 7.30 pm. Members of the Executive are expected to attend and any Club Member with business for discussion is welcome.

All correspondence should be addressed to -
The Secretary, B.A.R.G. Inc., PO BOX 216E, BALLARAT EAST. 3350.

Applications for Awards to Maurie Batt, RSD ROKEWOOD JUNCTION. 3351.

86/10 03

MINUTES OF GENERAL MEETING HELD 26th SEPTEMBER 1986.

MEETING OPENED at 7.40pm by President Bob BNC with 29 members and visitors in attendance.

APOLOGIES VU.DTY.CUH.KIT.DFI.SE.NIZ.KGL.AEX.

MINUTES of previous meeting as printed in Newsletter confirmed. WN/NFZ.

CORRESPONDENCE IN Ansett confirming visit to Simulator. Propagator & AR.

CORRESPONDENCE OUT Patrick Shipping Agency, MV Lindesay Clark, VK2 NHT, VK3 DES, Doug McLeod, N.J. Lloyd, WIA Western Zone.

TREASURERS REPORT General a/c \$514.04 VS&L a/c \$1712.10. Accounts for payment were held over until treasurers return from holiday. KQQ/KQF.

Q.S.L.MANAGER Cliff CCH received 152 cards in and sent 54 out. Cliff suggested that a sticker advertising the Club awards might be attached to outgoing cards. The legality of this is to be looked into.

AWARDS MANAGER Maurie XEX received applications for 12 awards for month.

REPEATERS An application to WIA Western Zone for a grant toward repeater costs resulted in a cheque for \$400.00. Moved Jim CFH seconded Fred KQF that a Repeater Bank Account be opened to keep this money separate from general Club funds. carried.

NEWSLETTER. Ron XOA still wants interesting material for Newsletter and cutoff date for receipt of material is 23rd of month.

HANVENTION Kevin WN reported that a VZ300 computer will be the raffle prize and tickets are now available.

EDUCATION It was moved by Neal KQQ seconded Greg DIE that a donation of \$25.00 and a novice handbook be donated to the Beaufort Girl Guides to assist with their electronic projects under the guidance of Maggie CFI. carried.

GENERAL BUSINESS. Inspection of the ore carrier 'Lindesay Clark' at Geelong was a great success and enjoyed by all participating.

Name badges for members are available locally and a sample will be available at the next meeting.

1986-87 WIA Call books will be available at next meeting. \$6.00.

BOB BNC then gave a talk on Foxhunting and demonstrated various types of equipment used.

MEETING CLOSED at 9.45pm and sandwiches were served.

NEXT CLUB MEETING 31st October at Education Centre. 7.30pm.

COMMITTEE MEETING 12th November at Education Centre. 7.30pm.

THE MEMBERS OF B.A.R.G. EXTEND OUR SINCERE
SYMPATHY TO HARRY HEKKEMA (3KGL) AND FAMILY
ON THE RECENT SAD LOSS OF HIS FATHER.

86/10 04

LADIES COMMITTEE

9th OCTOBER.

MEETING:- 10 ROWLANDS STREET SEBASTOPOL.

PRESENT:- KAREN, FRED, GWEN, JUNE, BETTY.

APOLIGIES:- PEARL, MARG.

AGENDA:- CONVENTION

CHRISTMAS TREE, B.B.Q.

NEW EXECUTIVE MEMBERS

MEETING OPEN 8.15.

CONVENTION

LADIES REQUIRED TO DO THE SAME AS LAST YEAR.

SPECIAL EFFORT IS A HAMPER. 20c a ticket or 6 for a \$1.

LADIES STALL WITH ASSORTED GOODIES.

ANYONE THAT WISHES TO HELP US ON THE DAY IS MORE THAN WELCOME.

A B.B.Q., LUNCH AND AFTERNOON TEA WILL BE PROVIDED ON THE SUNDAY.

CHRISTMAS TREE

DUE TO OTHER COMMITMENTS AROUND THIS TIME WE ARE UNABLE TO ORGANIZE THE CHRISTMAS TREE P.B.Q. AT BUNINYONG.

NEW EXECUTIVE MEMBERS.

LADIES AGREED THAT DUE TO OUR NUMBERS BEING LOW, THE PRESENT OFFICE BEARERS SHALL CARRY ON TEMPORARILLY.

SOCIAL EVENT

LADIES NIGHT OUT, 27TH NOVEMBER, 7.30 P.M.

THE WINERY.

IF YOU WOULD LIKE TO COME OUT WITH US: PH-GWEN, 359612.

YOURS FAITHFULLY,

J. FORRESTER. SECRETARY.

86/10

05

DOPPLER AND HIS EFFECT

Johann Christian Doppler was a little known scholar who lived in the first half of the nineteenth century. He was born in Salzburg, Austria in 1805 and died in 1854.

His paper describing what we now call "Doppler Effect" was presented to the Bohemian Society of Learning in 1842. The title of the paper was "On the Coloured Light of Double Stars and Some Other Heavenly Bodies". In 1844 Dopplers theory was tested and found to be correct by his contemporary Buis Ballot. There was a great deal of controversy concerning the proof at the time and this overshadowed the work for many years.

Dopplers theory is equally applicable to both low frequency waves i.e. sound and high frequency waves i.e. radio. To describe the effect it is of an advantage to to discuss the low frequency case first and then look at its application to radio frequencies.

Consider the case of a listener who is stationary, and a source of sound that is moving toward him. As each sound wave is emitted from the source, the source itself moves ahead towards the listener. This will have the effect of making the crest of the sound wave closer together. We know from basic principles that if the crests are closer together then the frequency is higher. The waveform has been compressed and the frequency appears higher than it actually is. Remember that the frequency only appears to be shifted as perceived by the listener. If he was moving in the same direction as the source and at the same speed then there would be no compression and no apparent frequency shift.

The relationship between the velocity of propagation of the wavefront and the speed of the advancing source is critical. The source must be travelling fast enough to compress the sound wave but not so fast as to actually catch up with the emitted wave. If this occurs then the source would have passed by you before you would be able to hear it. Ever been to an air show?

When the source is moving away, then the opposite effect occurs. The wave will be elongated and the frequency appears to be lower. (See diagram)

Exactly the same phenomenon occurs to a radio frequency wave. Of course the velocity of propagation is much greater (Close to the speed of light) so to obtain the Doppler Effect then the source must move very fast also. This is most noticeable when listening to a signal from a satellite, particularly a low orbiting one. As the satellite approaches you then the Doppler shift will be upwards in frequency and when it moves away from you, the shift is downwards. This effect does not occur with geostationary satellites because they do not appear to move relative to the listener.

Doppler shift has many uses in the scientific and medical fields. For instance, a Doctor can measure the blood flow through an artery by aiming a high

86/10 06

frequency sound wave at the blood vessel. The small particles that make up the solid portion reflect the waves back to a receiver. Because the particles are moving they will cause an apparent shift in frequency. This is measured in the receiver and can be displayed as litres/minute or other suitable units. The effect is also used in radar systems. The moving target causing an apparent shift in frequency which can then be calibrated in Km/Hr.

If anybody would like to do some further reading then I can recommend the Hewlett-Packard Journal June 1986 edition.

Cheers,

Dick Forrester VK3VU

REPRESENTATION OF DOPPLER SHIFT

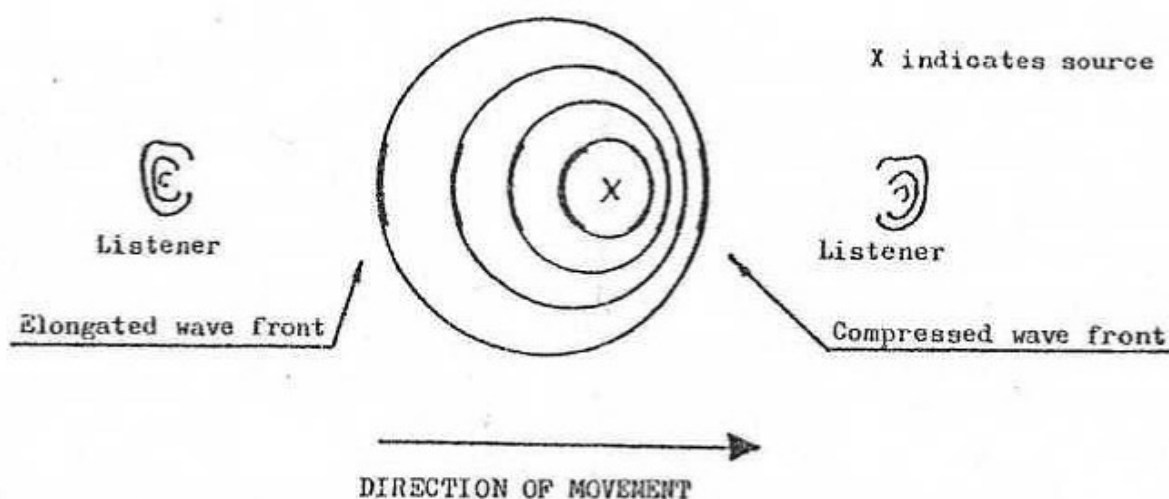
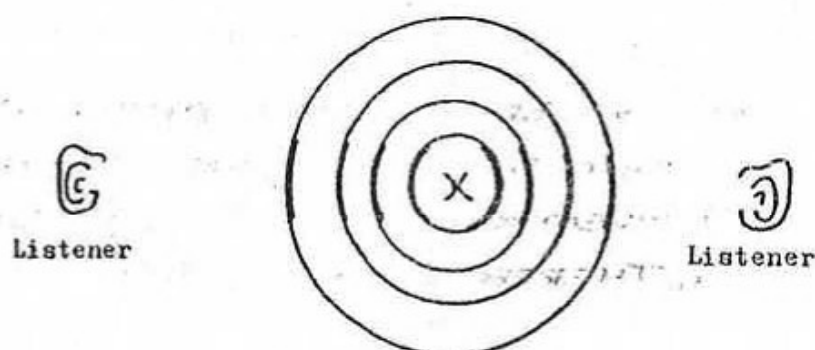


Figure 1



Since the source is stationary, there is no compression or elongation of the wave, therefore no Doppler Shift.

Figure 2

86/10 07

Ballarat Amateur Radio Group

VK3BML

P.O. BOX 216E
BALLARAT EAST, VICTORIA, 3350

22/10/86

DEAR

THANK YOU FOR CONFIRMING THAT YOU WERE COMING TO BALLARAT FOR OUR HAMVENTION ON NOV. 1st AND 2ND 1986.

I WISH TO ADVISE YOU THAT THERE HAS BEEN A CHANGE IN THE VENUE FOR THE SATURDAY NIGHT ONLY.

THE NEW VENUE IS AT THE CONVENTION ROOM AT THE BLUE BELL HOTEL IN HOWITT ST WENDOOREE (OPPOSITE THE SHOPPING CENTRE).

THE SATURDAY EVENING WILL BE AN INFORMAL COUNTER TEA AND DRINKS IN OUR OWN PRIVATE FUNCTION ROOM INSTEAD OF THE FORMAL DINNER AS PREVIOUSLY ADVISED. THERE WILL BE NO GUEST SPEAKER.

THE CHANGE OF VENUE WAS BROUGHT ABOUT BY THE VERY POOR RESPONSE TO THE SATURDAY NIGHT DINNER FUNCTION AND THE NEED TO GIVE A DEFINITE NUMBER OF MEAL BOOKINGS TO THE CATERING PEOPLE CONCERNED. THE RESPONSE TO THE SUNDAY PROGRAM IS EXCELLENT AND WILL PROBABLY EXCEED PREVIOUS YEARS. THE ABOVE CHANGE WILL ALSO REDUCE YOUR COSTS FOR THE EVENING AS YOU WILL ONLY PAY FOR THE FOOD AND DRINKS THAT YOU ORDER. IT WILL NOT BE ESSENTIAL TO HAVE A MEAL, SO COME ALONG AND ENJOY THE EVENING AND MEET YOUR FELLOW HAMS AND THEIR WIVES.

I DO HOPE THAT THE ABOVE CHANGE DOES NOT CAUSE YOU ANY INCONVENIENCE AND LOOK FORWARD TO MEETING YOU AT THE HAMVENTION.

73 & FROM KEVIN HUGHES
VK3WN
CONVENOR



PLEASE MAKE AN EFFORT TO ATTEND THE MEETING ON FRIDAY NIGHT, SO JOBS CAN BE ALLOCATED FOR THE HAMVENTION. IT IS YOUR GROUPS' CONVENTION, THEREFORE YOUR HELP IS NEEDED.

86/10 08
1986 BALLARAT HAMVENTION.

*** PROGRAM ***

SUNDAY NOVEMBER 2ND.

08:30-12:00 REGISTER AT HALL AND COLLECT MEAL TICKETS.
EVENT ONE

09:30-09:40 2m SSB SCRAMBLE. MARSHALL ON 144.150 MHz.

EVENT TWO

09:45-09:55 2m FM SCRAMBLE. (146.450, 146.500 & 146.550MHz).
MARSHALL ON 146.500 MHz.

EVENT THREE

10:00-10:00 2m HANDHELD SCRAMBLE. MARSHALL ON 146.500 MHz.

EVENT FOUR

10:15-10:25 40m SCRAMBLE. MARSHALL ON 7.075 MHz.

EVENT FIVE

10:30-10:40 80m SCRAMBLE. MARSHALL ON 3.600MHz.

EVENT SIX

11:00-11:15 HIGH SPEED CW RECEIVING COMPETITION (1 MINUTE
EACH AT 25,30,35 AND 40 WPM).

EVENT SEVEN

11:20 SNIFFER HUNT. FREQUENCY ABOUT 144MHz.

11:30 SURPRISE! (ESPECIALLY FOR THE CHILDREN).

12:00-13:30 LUNCH.

EVENT EIGHT

13:30 70 cm FOX HUNT. 439.000MHz.

13:30 CHILDREN SATELLITE DRAWING.

EVENT NINE

14:05 2m FOX HUNT. 146.500MHz.

14:30 CHILDREN'S BEEPER HUNT.

EVENT TEN

14:45 80m FOX HUNT. 3.585 MHz.

15:00 ENTRIES CLOSE FOR HOME-BREW.

15:15 JUDGING OF HOME-BREW.

15:30 TROPHY AND PRIZES PRESENTATION.

15:45 AFTERNOON TEA.

CHANNEL 3 AND 3.610 MHz WILL BE MONITORED DURING THE FOXHUNTS
SHOULD YOU GET LOST!!

Who's Who in th B.A.R.G.

This Month it's Bud NFZ.

If you want to get to know a person, then interview them! the snippets of history one collects on the way is well worth the involvement. This interview was no exception!

The question was how Bud became interested in Ham radio, and in reply I quote " In 1925 Dad was the most popular man in the neighborhood because he owned a radio, a crystal set. One of our acquaintances was a chap who used to write for a radio magazine, and he gave me a circuit for a crystal set, naturally I was thrilled and after pleading with Dad to be allowed to buy a crystal & cats whisker I was able to build it up - and it worked! boy, was I wrapped! I must have been 8 or 9 years old at the time. Seeing as Dad had been a signaller in WW/1 he advised me to learn radio from the beginning and also the morse code. So-it was written out and in no time I had it off pat'. I never used it, but I never forgot it! also I never did anything about it until approaching retirement.

Pre-war I used to knock about with a lot of guys in the R.A.A.F. radio bods ie. I joined up in 1936 - lets go back further - 1932, I was employed at Eclipse Radio Sth Melb. wiring 5 valve superhets, things were tough, us kids had to wire up 3 radios a day and if you didn't finish by knock off time - it was stay back until you did, or don't come back in the morning!!! Naturally this taught us to be pretty slick and we were usually ready to finish 1/2 hr. early and just stalled out to finish on time.

From there Bud took a number of jobs & in 1936 joined the R.A.A.F. and met his radio buddies, who had radio sets in their rooms and without ATUs worked the world with 5 watts. So, here it was that he developed an interest in ham radio, but it wasn't till after the war that he could follow it up, and it was then that Bud got back into wiring "sets" again - and after he married - he actually built his own "Fireside Five". (Ah! nostalgia)

86/10 10

Now! Bud was involved in film projection in his younger years, and was tied up in the Hoyts theatre circuit in Melbourne, not so much as a paid projectionist, but as a 'novice' - learning. It seemed inevitable that he would eventually become a qualified projectionist, and thus it was, but during his service with the R.A.A.F. and his association with radio personnel, a lot brushed off on him had no doubt helped to influence his decision later on.

In June 1954 Bud took his discharge from the air force and became part of Ballarat's 'civvie' life over the years taking on a variety of occupations. These included Manager of Kelaston home for the blind, pin ball machine tech. and film projectionist. It was during the latter period that two of Bud's workmates convinced him that HAMradio was the way to go as he faced retirement, and it was time to brush up his theory and regs..

Hence Bud's entry into Amateur radio.



THE SPOTLIGHT IS ON!

Venture Video

614 SKIPTON ST., SEBASTOPOL

Ph. (053) 35 6933

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ANYONE INTERESTED IN CW?

AT PRESENT THERE IS A 2 METRE BEACON OPERATING IN MELBOURNE ON 144.950 MHZ FM. IT SENDS RANDOMLY GENERATED MORSE AT VARIOUS SPEEDS. IT IS QUITE LOUD HERE IN BALLARAT, AND USES THE CALLSIGN VK3RCW.

DICK AEX

WARNING 

**PCB's
WASTE OIL
USERS BEWARE!**

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Melbourne, Vic.
3002. Tel.
452 4283

Do not buy oil extracted from transformers as they may contain polychlorinated biphenyls (PCB's).

This hazardous chemical is dangerous to human health and the environment and improper handling may result in prosecution under the Environment Protection Act 1970.

Contact EPA immediately. If you suspect the presence of PCB's or require further information.

Victorian
Government

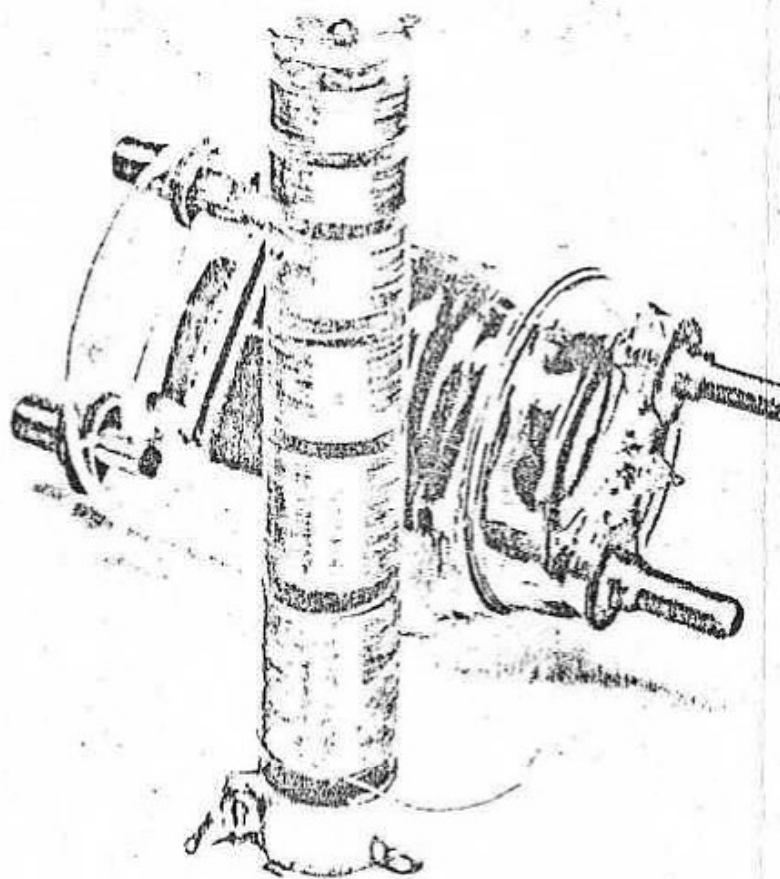
86/10 - 12

Save Money — Build Your Own RF Choke!

Transmitter plate chokes are expensive and sometimes hard to acquire. Why not twirl your own? Here's how to tackle the job.

If your spare-parts bin resembles Mother Hubbard's cupboard, keep your eyes glued to these pages! If it's an rf choke of high-power rating that's keeping you from completing the amplifier which broods hopelessly in the corner of your workshop, take heart. You can build your own choke from some pretty ordinary materials. The model described here costs approximately \$1.50 to assemble, and it will handle 2 kW PEP with ease from 1.8 to 30 MHz.

In order for an inductor to serve properly as an rf choke it must satisfy some important needs. First, it has to be capable of passing the circuit current without excessive heating. Secondly, it must have a high parallel resistance at the operating frequency — typically five to 10 times the characteristic impedance of the circuit element to which it is attached. The third commandment is that it have no series resonances at the frequencies of operation. Concerning the latter, you may have experienced a puzzling catastrophic event — a pi-wound rf choke that literally exploded when power was applied to your amplifier at some particular frequency. No doubt the choke pi windings slammed together with a loud bang, then tendrils of smoke curled up from the component. Well, chances are that the choke was self-series-resonant, caused by the distributed capacitance across the unit, plus the inductance traits. At the series-resonant frequency most of the amplifier rf power flows through the inductor to ac ground. This sets up a tremendous momentary



The completed choke and the 633A amplifier tube used for in-circuit chokes.

86/10:131

JOTA

JOTA was certainly different for me this year. In 1985 only Guides participated, from the Beaufort area, but this year I had Scouts in the shack, as well.

I visited both groups about a fortnight prior to the JOTA weekend. I gave both the same talk and brought along a sackful of gadgets: an AR poster, 4 PTT microphones, a Tuna Tin II transmitter, QSL cards, and a code practice oscillator made from a kit. Also given to each was an information sheet with the phonetic alphabet and some notes. They could refer to the sheet when they got mic shy.

The contrast between Scouts and Guides could not have been more stark. The boys were lively, active, and inquisitive. The girls asked no questions and sat demurely and quietly. I came away feeling dismayed and upset by their lack of enthusiasm.

And so it was a huge surprise when the Guides came to the shack. They were full of energy and eager to talk to Scouts and more Scouts. They had all done their homework and only a few needed to refer to their notes. 16 Guides took part. They brought bikkies and drinks and waited in my loungeroom as I took 5 in at a time. The three Scouts were quiet, shy, and a bit nervous. However, it was their first JOTA. After a few moments of mirth, they finally relaxed.

It was easy to find contacts on the Saturday, but Sunday was a nightmare come true. I called and called on 14.190 and 7.090, the JOTA calling frequencies. I tuned the bands up and down. There were several QSOs in progress but no one called CQ. The Scouts waited politely and, finally, we made contact with a station in the Riverina where my signal was 59. After lots more calling, Cliff CCB and Bob BNC gave us contacts via 2 meters. Phew!

My thanks to VK 3 BNC, KQF, PAP, PUH, NFZ, CCB, and WN.

de Maquie VK3CFI

86/10 14

WANTED

WANTED

WANTED

The Beaufort Girl Guides are in need of the following items so they may construct some electronic kit projects. If you can spare any of these items, please contact Maggie CFI at the next meeting or on the repeater.

junk boxes or plastic boxes with dividers

heat sinks

solder

non-insulated hookup wire

screws and washers

battery clips

breadboards

pliers, sidecutters

capacitors (mixed)

small speakers

crystal earphones

power diodes, LEDs

ferrite rod aerials

resistors (mixed)

light dependent resistors

spaghetti insulation

transistors (mixed)

9v batteries

morse code keys

ICs - ZN414

jiffy boxes

field which causes the windings to collapse and burn. We'll look at this matter in greater depth later in the article.

Choke Description

When is a choke a choke? In the writer's case it had to be free of series resonances in the amateur bands from 3.5 to 30 MHz, be capable of handling 600 mA and look like a high impedance to the 5000-ohm, plate-load impedance of the amplifier tube. If it could meet all of these requirements, it would indeed be an rf choke.

An earlier trip to a plastics supplier resulted in the purchase of a scrap piece of Plexiglas rod which was two feet long and 1-1/4 inches in diameter (600 x 32 mm). The cost was \$2.50 . . . inexpensive because of blemishes. An eight-inch (200-mm) piece remained from the original length, so it was used in its entirety as the form for the rf choke. The ends were made smooth and flat by means of a file, and the main body of the rod was rubbed with steel wool to remove the nicks and scratches.

An old filter-capacitor bracket seemed about right as a mounting foot. One was located in the junk box, and it worked fine after the bottom of the rod was built up with a few layers of masking tape to provide a snug fit. Next, two no. 30 holes were drilled off center through the sides of the rod (one at the top and another near the mounting bracket) to accommodate the ends of the winding.

A no. 8 tap hole was drilled one inch (25 mm) deep at the top center of the rod. It was tapped for an 8-32 screw thread to permit two no. 8 solder lugs to be affixed. The screw threads were dipped in epoxy cement before the hardware was tightened in place. This would help prevent loosening of the screw in the presence of heat.

No. 26 Formvar-coated copper wire was used for the choke winding. It was wound in a solenoidal manner (close spaced, single layer). The winding was broken up every so often with a group of quarter-inch (six-mm) gaps. This would help reduce the capacitance across the overall winding, thereby reducing the probability of unwanted series

resonances. The numbers of turns per section are listed in Fig. 1. The upper end of the winding was attached to one of the solder lugs. A three-inch (76-mm) lead was left dangling at the lower end of the choke for subsequent connection to the high-voltage feedthrough bushing and plate bypass capacitor. Finally, two coatings of polystyrene Q dope were applied to the winding and allowed to dry. TV type high-voltage corona dope or glyptol would probably serve okay as substitutes for the Q dope.

Electrical Characteristics

The assembled choke was checked first for series resonances. The ends of the winding were shorted together by means of an eight-inch (200-mm) length of hookup wire. Then, a dip meter was coupled to one end of the winding. The range from 1.6 to 45 MHz was investigated to see if any dips occurred. Series resonances were found at 9.5, 12, 16, 18.5 and 26 MHz. Luckily, no dips were found in the amateur bands!

Finally, a laboratory RX meter was

used to learn how high the choke parallel resistance was at 3.5, 7, 14, 21 and 28 MHz. At all frequencies the reading was 100 k Ω or higher. The choke would be more than adequate for the 5000-ohm plate load of the amplifier. As a matter of curiosity the choke was checked at 1.8 MHz; it showed a 100-k Ω characteristic there also.

The in-circuit performance with an 833A tube was excellent from 80 through 10 meters. The only complaint the writer might voice is that the Q dope formed little bubbles here and there after a few weeks of amplifier use, making the choke look as though it was suffering from dermatitis.

The choke has an inductance of 600 μ H. A value of 110 was obtained during a check of the unloaded Q. Neither of these facts are especially significant to those who may choose to duplicate this design. But, if the reader departs from the layout shown in Fig. 1 these numbers may be helpful in developing an independent design.

Tag Ends

Other types of body material should be entirely suitable for winding homemade rf chokes. A high-quality type of glass-epoxy tubing might be okay as a coil form. If you have access to a ceramic kiln, try making your own forms. A glass Alka-Seltzer bottle might even be worth trying. The main considerations are the relative immunity of the material to heat, and the dielectric properties. PVC tubing, for example, is totally unsuitable, as is nylon. Such insulators will overheat and melt in the presence of high rf fields, and they will be lossy.

Admittedly, the choke described here is very large. Smaller chokes with fewer turns can be built for use in power amplifiers. The main point to this presentation is that you can make your own rf chokes inexpensively. Perhaps the greatest reward from such an effort comes when the component is ready to use only an hour after the construction starts. No need to wait days or weeks for a commercial choke to be delivered by mail! —

Doug DeMaw, W1FB

887-1

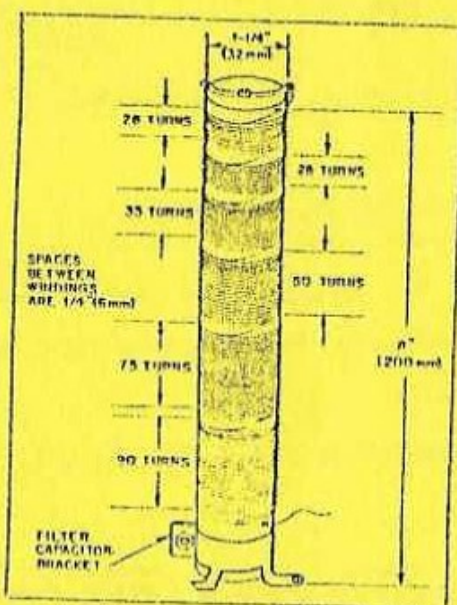


Fig. 1 — Pictorial drawing of the rf choke. No. 26 wire is used for the turns. A quarter-inch gap is used between the choke sections (see text).

86/10

16

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